United States Department of Agriculture

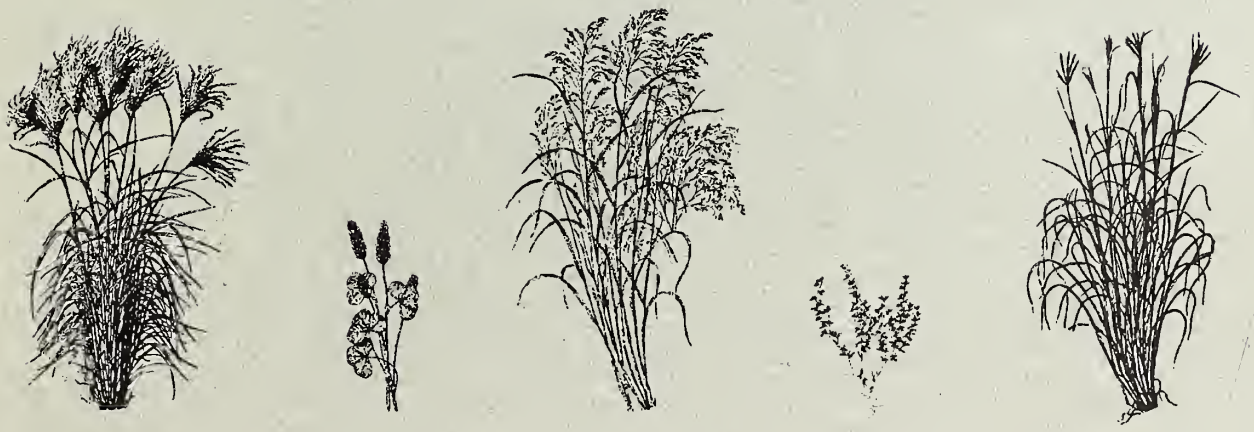
Natural Resources Conservation Service

Jamie L. Whitten Plant Materials Center

1996 Annual Report of Activities

"The greatest service which can be rendered to any country is to add a useful plant to its culture"

Thomas Jefferson (1743-1826)



This publication is dedicated to Mike Lane, B. B. Billingsley, and Joe Snider who after 89 years of combined service retired this year. The Plant Materials Center did not only lose their expertise as conservationists, but we have also lost our unofficial historian, story teller, mechanic, electrician, carpenter, etc. We wish each of them the very best.

TABLE OF CONTENTS

STAFF

Full time employees	Position
David M. Lane	Manager
Joseph A. Snider	Assistant Manager
B.B. Billingsley	Project Leader
Herby Bloodworth	Agronomist
Janet M. Grabowski	Biologist
Scott D. Edwards	Laboratory Director
Laura T. Mason	Secretary
William D. Benoist	Biological Technician
Jeff H. Tillman	Biological Technician

Part time employee	Position
James O. Pomerlee	Gardener

Americorp workers	Position
Laresa Wilbourn	Laboratory Assistant
Bill Rowsey	Biological Aide

Plant Materials Specialists

Richard White, Colby, KS.
Joel L. Douglas, MS, AR, TN Coffeeville, MS.

State Conservationists' Advisory Committee

Homer L. Wilkes, Jackson, MS
Ronnie L. Murphy, Little Rock, AR
Don W. Gohmert, Alexandria, LA
Jerry S. Lee, Nashville, TN

INTRODUCTION

The Jamie L. Whitten Plant Materials Center (PMC), located at Coffeeville, Mississippi, is operated by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), formerly Soil Conservation Service. This PMC is part of a national network of 25 plant materials centers whose mission is to develop plants and cultural techniques to address current conservation problems.

The objective of the National Plant Materials Program is to provide effective vegetative solutions to conserve soil and water resources, improve water and forage quality, and increase wildlife habitat. To meet this challenge, the PMCs identify superior adapted plants, develop production and management techniques, assist commercial producers, and promote acceptance and use in conservation and environmental programs. Since the beginning of the Plant Materials Program, over 300 superior plants have been released nationwide. Plant Materials Centers also evaluate methods to better utilize plants that are already commercially available.

The Coffeeville PMC began operations on August 8, 1960, functioning both as a PMC and a seed production unit for the Yazoo-Little Tallahatchie Flood Prevention Project. The seed production unit was discontinued in 1982, and the plant materials function was reorganized and expanded. During its tenure, the PMC has evaluated over 6,800 plant accessions for erosion control on cropland, stream channels and critical areas, as well as for forage production, wildlife food and cover, and wetland mitigation and restoration.

The PMC works cooperatively with other agencies and organizations in carrying out these functions. Cooperators include the Mississippi Agricultural and Forestry Experiment Station (MAFES), Mississippi Association of Conservation Districts, USDA Forest Service, USDA Agricultural Research Service, Mississippi Department of Transportation, Alcorn State University and Mississippi State University. The PMC also has cooperative agreements with the National Park Service (NPS) and the Department of Defense.

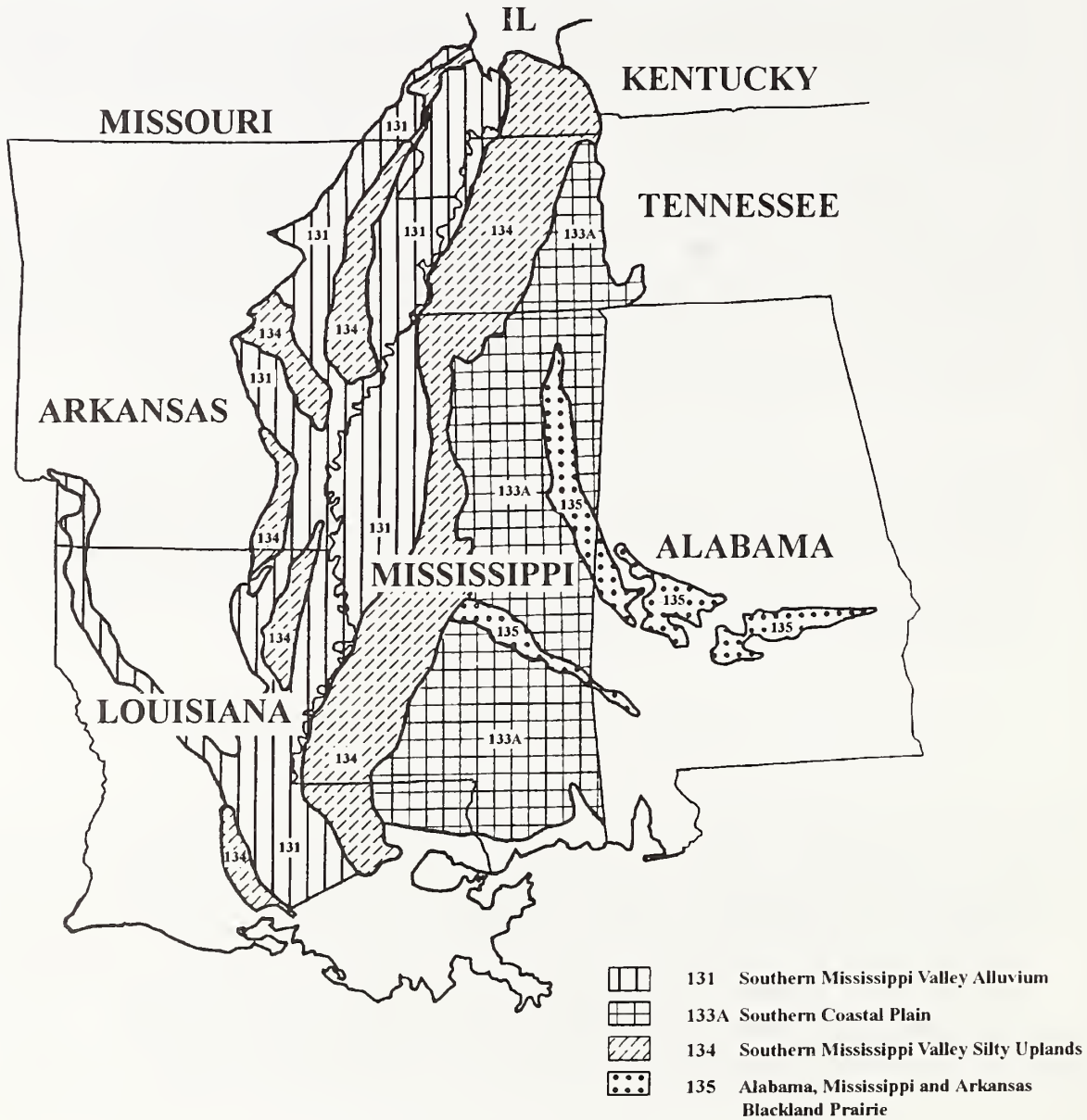
LOCATION AND FACILITIES

The Jamie L. Whitten PMC is located within the Holly Springs National Forest, approximately five miles east of U.S. Interstate Highway 55, on Mississippi Highway 330 between Coffeeville and Tillatoba (see map inside back cover). Facilities consist of an office and laboratory complex, a greenhouse complex, seed cleaning and warehouse buildings, shop and equipment storage areas, and fuel, fertilizer, and herbicide storage buildings. A constructed wetland provides waste and storm water treatment for the greenhouse complex.

SERVICE AREA

The primary service area of the Jamie L. Whitten PMC includes most of Mississippi, excluding the coastal areas that are serviced by the Golden Meadow PMC in Louisiana. It also includes parts of Arkansas, Louisiana, Missouri, Alabama, Kentucky, and Tennessee. This territory is defined by Major Land Resource Areas (MLRAs), which possess similar soil types, climate, topography, and land use patterns. The MLRAs involved are: MLRA 131 (Southern Mississippi Valley Alluvium); MLRA 133A (Southern Coastal Plain); MLRA 134 (Southern Mississippi Valley Silty Uplands); and MLRA 135 (Alabama, Mississippi, and Arkansas Blackland Prairie).

The map below identifies the service area and MLRAs served by this PMC.



The PMC addresses the needs of the service area on 200 acres of open fields. The growing areas consist of both bottomland and upland fields, with most being of irregular size and shape, defined by streams, drainages, roads, and other topographic features. Bottomland fields primarily have Oaklimeter silt loam soils, which are acid and often wet. With proper drainage and management these soils can become very productive. The upland soils are predominantly Loring and Grenada silt loams with fragipans. These soils are also acid and moderately to highly productive.

This variety of available growing sites permits plant evaluation under conditions representative of much of the service area. Tests may also be located at sites off the center, which further broadens the available range of testing situations. Specialized aquatic cells are located at the PMC for use in production and evaluation of aquatic plants.

CLIMATE

All weather data presented in this report is from October 1, 1995 through September 30 1996. During this time period there was a total of 188 frost free days which was 15 fewer than we had in 1995. We received our last frost of the year on April 11, 1996, which is not unusual for this area of the state. Temperatures remained normal throughout the winter and summer months as compared to the 20 year averages.

1996 Growing Season Average Monthly Temperature

	1995			1996									
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Ave.
High	77	61	53	51	56	61	73	84	86	90	88	82	72
Low	47	33	31	29	33	36	44	62	66	69	67	59	48

We were two inches above the 20 year total rainfall average. We experienced below average rainfall for both February and May but then we doubled our average rainfall for June with 9.02 inches.

1996 Growing Season Monthly Total Rainfall

1995			1996									
Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Total
3.37	3.97	7.06	5.67	2.86	5.18	5.95	3.90	9.02	4.82	3.49	7.50	62.79

PLANT RELEASE PROCESS

The Plant Materials Program has established a systematic process to evaluate and release plants to address the conservation problems outlined in the long-range program. The Jamie L. Whitten Plant Materials Center, in cooperation with the Mississippi Agricultural and Forestry Experiment Station and the Mississippi State University Department of Wildlife and Fisheries has released the following plant cultivars and source identified wetland plants which are available for commercial production:

Wetland plants:

Indian Bayou Source Powdery thalia (*Thalia dealbata* Fraser ex Roscoe)
Accession #: 9059002

Indian Bayou Source was released in 1996 as a source identified plant to be used mainly as an aquatic ornamental valued for its large bluish leaves and purple flowers. It can also be used in constructed wetlands for home septic systems and the seed is eaten by some waterfowl. It is adapted to sites with water levels up to 1.5 feet deep. Establishment is by sections divided from the parent plant or by greenhouse grown seedlings.

Leflore Source Creeping burhead (*Echinodorus cordifolius*) (L.) Griseb.
Accession #: 9062853

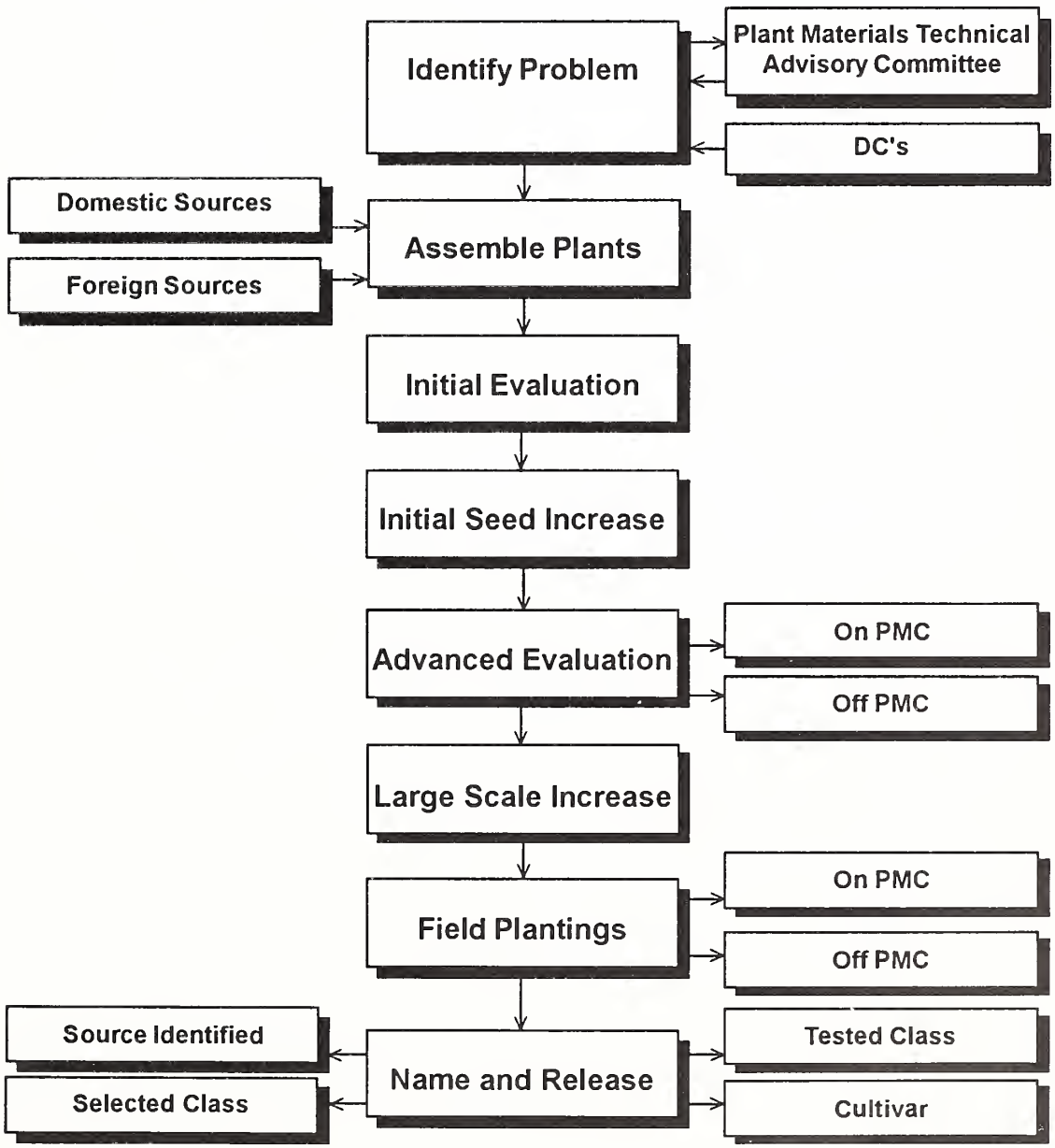
Leflore Source was released in 1996 as a source identified wetland plant to be used for ornamental purposes. It is a creeping perennial plant that is adapted to sites with water about one foot deep. It is propagated by transplants.

Leaf River Source Woolgrass (*Scripus cyperinus*) (L.) Kunth.
Accession #: 9062741

Leaf River Source was released in 1996 as a source identified wetland plant for use in constructed wetlands and for shoreline stabilization. It also has some ornamental value and provides wildlife cover and bird nesting sites. It is a clump-forming, grass-like perennial that is best adapted to shallow water depths. Transplants are the preferred establishment method.

PLANT MATERIALS PROGRAM
PLANT RELEASE PROCESS

The Plant Materials Program has established a systematic process to evaluate and release plants to address the conservation problems outlined in the long-range program. The following flow chart illustrates the steps involved in this process.



LONG-RANGE PROGRAM

Conservation problems that exist within the Jamie L. Whitten PMC service area are identified in the long-range program. The long-range program is established by the State Conservationist's Advisory Committee from recommendations provided by a multi-disciplinary plant materials technical committee to direct plant materials activities. Outlined below are the major conservation problems and level of priority.

CROPLAND EROSION CONTROL	PRIORITY
Winter cover compatible with no-till or conservation tillage	High
Improved plants for field borders, filter strips, waterways, and to substitute for mechanical practices	High
Alternative cropping systems for limited resource producers	High
PASTURE AND RANGELAND EROSION CONTROL	
Cool-season forage grasses	Medium
Warm-season forage grasses	High
Legumes compatible with grasses	Medium
CRITICAL AREA EROSION CONTROL	
Vegetation for roadways, woodlands, and drastically disturbed sites	Medium
Vegetation for shorelines of ponds, lakes, and streams	Medium
WATER QUALITY IMPROVEMENT	
Non-point source pollution and contamination of surface and groundwater	High
Animal waste management systems	Medium
WILDLIFE HABITAT IMPROVEMENT	
Plants for wildlife food and cover in all land use categories, i.e. cropland, pastureland, and woodland	Medium

ACTIVE PROJECTS IN 1996

Project plans are formulated based on the conservation problems outlined in the PMC long-range program (Page 7). Projects active in 1996 will be categorized according to the major conservation problem they address.

CROPLAND EROSION CONTROL

TITLE: **HERBICIDE PROGRAM FOR NO-TILL SOUTHERN PEA DOUBLE-CROPPED WITH WHEAT**

PROJ NO: 28A801M.14b
START: 01 OCT 95 TERM: 31 DEC 99

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: To evaluate preemergence and postemergence herbicide programs for southernpea double-cropped with wheat.

APPROACH: Selected preemergence and/or postemergence herbicides will be evaluated for their performance on southernpea. Herbicides will be rated for control of grass and broadleaf weeds and their effects on southernpea seed yield. Southernpea will be evaluated for crop injury.

PROGRESS: 9601 TO 9612
Preemergence herbicides provided good large crabgrass weed control (>85%) during the growing season. Tank mixing metolachlor (Dual) with imazethapyr (Pursuit) did not increase weed control when compared to each applied alone. Grass weed control for sethoxydim (Poast) alone applied postemergence was only slightly better than the untreated check. Broadleaf weed pressure was generally light throughout the year and consisted mainly of tall morning-glory. Depending upon the postemergence herbicides alone, sethoxydim and bentazon (Basagran), decreased weed control and seed yield. No differences were found for metolachlor or for imazethapry applied alone or tank mixed with or without the postemergence herbicides for seed yield.

TITLE: **SWEETPOTATO PRODUCTION USING CONSERVATION TILLAGE**

PROJ NO: 28A801M.8b
START: 01 OCT 95 TERM: 31 DEC 97

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: The overall objective is to determine if minimum soil disturbance will successfully establish sweetpotato plants and maintain high yields and if planter modification is necessary in a conservation tillage system.

APPROACH: Following destruction of a wheat cover crop, five management systems are evaluated. These systems are conventional tillage, paratill plowing, no-till, planter modification, and planter modification + cultivation. A transplanter was modified by adding a shank with a 6" sweep set to run in front of the coulter and sword opener. Plots are noted for canopy development and yields by grade and total are analyzed to determine significant differences.

PROGRESS: 9601 TO 9612
Sweetpotato slips were successfully established in all plots. No differences were noted for plant growth and development between any management system. No significant differences were found for yields of any grade or for total yield.

TITLE: **RESEEDING METHODS OF ARROWLEAF CLOVER IN NO-TILL SORGHUM**

PROJ NO: 28A801M.10b
START: 01 OCT 95 TERM: 31 DEC 99

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: To determine the influence of soil disturbance in an no-till grain sorghum system on reseeding arrowleaf clover and the response of grain sorghum to arrowleaf clover as a cover crop.

APPROACH: Eight treatments have been selected for evaluation. These are: 1) fall paratill plowing, 2) fall cultivate, 3) fall disking once (1X), 4) fall hipping 1X, 5) check (shred sorghum stalks only), 6) no clover and no N, 7) no clover + 120 lb N/acre, and 8) no sorghum. Arrowleaf stand counts, dry matter yield, and N content will be evaluated. Sorghum grain yield and N content will be determined.

PROGRESS: 9601 TO 9612
The 1995-1996 arrowleaf growing season was the establishment phase for this study. Grain sorghum will be no-till planting in 1997 and treatments will be imposed in the fall.

TITLE: **EVALUATION OF PLANT SPECIES FOR VEGETATIVE HEDGES**

PROJ NO: 28C804L
START: 01 MAR 92 Term: 01 SEP 96

INVESTIGATOR: Lane, D.M., Douglas, J.L.

OBJECTIVES: 1) To evaluate ten plant species for stand persistence, vigor and environmental adaptation, 2) measure plant architecture and stem properties, and 3) determine sediment trapping potential of each plant species.

APPROACH: Three contour lines were arranged parallel across a field with a 6.8% slope. Spacing between contour lines was 63 feet. Within each respective contour line, 5 by 30 foot plots were established. Ten primary plant species were established in each plot either as a monoculture or in a mixture with 'Pennlawn' red fescue (*Festuca rubra*) or redtop (*Agrostis alba*). Plant species included were: 1) arundo (*Arundo donax*) + red fescue, 2) eastern gamagrass (*Tripsacum dactyloides*) + red fescue, 3) dwarf switchcane (*Arundinaria gigantea*) + 'KY 31' tall fescue (*F. arundinacae*), 4) vetivergrass (*Vetiveria zizanioides*) + redtop, 5) blackberry (*Rubus argutus*) + red fescue, 6) pampasgrass (*Cortaderia selloana*) + red fescue, 7) 'Lometa' indiangrass (*Sorghastrum nutans*), 8) tall fescue, 9) 'Alamo' switchgrass (*Panicum virgatum*), and 10) miscanthus *(Miscanthus sinensis*) + red fescue. To accelerate erosion between hedges, the field was fallowed. Prior to fallowing, a baseline survey of the field was made and repeated annually for three consecutive years to determine sediment accumulation. Visual ratings for percent stand, vigor and weed competition was recorded annually. Plant height, canopy spread, stem density and stem diameter were measured in 1996.

PROGRESS: 9201 TO 9609
Switchgrass, arundo, blackberries, dwarf switchcane, tall fescue and miscanthus exhibited favorable stand persistence and vigor. Vetivergrass and pampasgrass were severely winter damaged in 1992-1993 and 1995-1996, respectively. Indiangrass did not persist. Miscanthus had a significantly higher stem density (42 per ft) than the other plant species. Arundo was the tallest (11 ft), had the widest canopy spread (16 ft), and had a significantly larger stem diameter (.55 in). Sediment accumulation ranged from 0.51 feet for blackberries and 0.32 feet for arundo. Weeds invading plots with poor stands proved to be effective in trapping sediment. Red fescue was useful as a companion grass in preventing gullying through the hedge until the primary species established.
Switchgrass, miscanthus, dwarf switchcane, eastern gamagrass, and blackberries demonstrated the potential for consideration as a vegetative hedge. Further testing of these plant species is needed to determine their ability to reduce surface runoff, trap sediment, overcome sediment deposition and withstand concentrated flow.

PUBLICATIONS:
Lane, D.M., and J.L. Douglas. 1997. Evaluation of plant species for vegetative hedges. Jamie L. Whitten Plant Materials Center. Technical Notes Vol. 12, No. 14. 7pp.

PASTURE AND RANGELAND EROSION CONTROL

TITLE: **EASTERN GAMAGRASS INTERCENTER STRAIN TRIAL**

PROJ NO: 28R503R
START 01 MAY 95 TERM: 31 DEC 98

INVESTIGATOR: Snider, J.A.

OBJECTIVE: Evaluate yield and quality of 13 accessions of eastern gamagrass. Accessions with the greatest forage potential will be increased and released by the originating PMC.

APPROACH: 13 accessions (434493 KCPMC; 9043629, 9043740, 9043762 ETPMC; 9055975, 9059213, 9059215 FLPMC; 9058465, 9058495, 9058568 ARPMC; 9062708, 9062680 MSPMC; 9066165 LLPMC) were planted in a randomized complete block with four replications in 1995 and allowed one year to establish. Beginning in 1996, nitrogen, as ammonium nitrate (34-0-0) and potassium, as muriate of potash (0-0-60), were broadcast applied at 200 lb/acre/year in split applications beginning in April and after each cutting. Phosphorus was maintained at a medium soil test level. Dry Matter (DM) yield was determine at boot stage for the first cutting and subsequent cuttings were made at 45 day interval. After each cutting samples were collected for % crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF) and total digestible nutrients (TDN).

PROGRESS: 9601 TO 9612

Three cuttings were made in 1996 (20 May, 3 July, 19 August). Average season total DM yield was 5 tons/acre. The total DM yield ranged from 7 tons/acre (9058465 ARPMC; 9066165 LLPMC) to a low of 1 ton/acre (9055975 FLPMC). Accessions from Florida were severely winter damaged in 1995-1996 and never recovered. Quality estimates are forthcoming.

TITLE: **FORAGE PRODUCTION AND ANALYSES OF EASTERN GAMAGRASS**

PROJ NO: 28A118R.1
START: 01 SEP 93 TERM: 31 DEC 98

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: To evaluate the performance of the native species eastern gamagrass and 'Alamo' switchgrass with the introduced species 'Tifton 44' bermudagrass and 'Tifton 9' bahiagrass.

APPROACH: Plots of each species were planted in 1994 and initial data collected in 1996. One half of each plot was harvested either on a 30- or a 45-day schedule. Forage quality will be determined by analyzing each species after each harvest for acid detergent fiber, neutral detergent fiber, and N & P content.

PROGRESS: 9601 TO 9612
Order of total forage production was 'Tifton 44' bermudagrass > eastern gamagrass > 'Alamo' switchgrass. Cold winter temperatures delayed emergence and stand recovery of 'Tifton 9' bahiagrass. Therefore, this species was not included in the analyses. Forage quality determinations have not been completed at this time.

TITLE: **SILAGE PRODUCTION AND ANALYSES OF EASTERN GAMAGRASS**

PROJ NO: 28A118R.2
START: 01 MAR 95 TERM: 31 DEC 97

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: Overall objective is to evaluate eastern gamagrass as a silage crop for the southeastern United States and to determine how it compares to corn and sorghum in quantity and quality.

APPROACH: Perennial plots of eastern gamagrass are compared to corn and sorghum. Eastern gamagrass is harvested at the 25% bloom stage (3 times/yr), corn is harvested at early dent, and sorghum is harvested at the hard dough stage. Samples are taken at each harvest and ensiled for quality analysis.

PROGRESS: 9601 TO 9612
Sorghum produced a total dry matter yield of 6.5 tons/acre which was significantly higher than corn (5.5 tons/acre) or eastern gamagrass (5.0 tons/acre). Low corn yield was attributed to having to replant in mid-May because of bird damage to corn seedlings. Quality analyses are being conducted at this time.

TITLE: **RESTORING CRP FIELDS BY CLIPPING TREATMENTS**

PROJ NO: 28C805T.3
START: 01 NOV 94 TERM: 31 DEC 97

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: To determine if clipping alone will encourage desirable forage species or if fertilizer and chemicals are needed in addition.

APPROACH: Fields that had been out of production for several years had stands of both desirable forage species and perennial weeds were used in this experiment. Plots were clipped when weeds reached an average height of 12", clipped + fertilized with 100-21-43 (N-P-K), or clipped + fertilizer + glyphosate (1.0 lb ai/acre) applied in early June. Glyphosate (Roundup) was applied only during the first year while clipping and fertilizing were continued for the second year. This experiment was repeated at another location in 1996. An untreated plot served as a check.

PROGRESS: 9601 TO 9612
Clipping + fertilizer after the second year reduced broomsedge and enhanced stands of the forage species. These species were fescue and large crabgrass. Glyphosate eliminated both the forage species and broomsedge. Also, broadleaf weeds were more abundant in these plots.

TITLE: **IDENTIFYING FORAGE SPECIES BEST SUITED FOR CONVERTING CRP FIELDS**

PROJ NO: 28C805T.5
START: 01 JUN 96 TERM: 31 DEC 98

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: To determine if no-till planting of desirable forage species will result in stands equal to or superior to stands established by conventional tillage.

APPROACH: A field with established stands of broomsedge will be sprayed in early July with glyphosate. In early November, two forage systems will be evaluated in no-till and conventional till systems. Forage systems are ryegrass + bahiagrass and fescue + white clover. Forage yields will be determined twice yearly. All operations and inputs will be recorded for economic analyses.

PROGRESS: 9601 TO 9612
Broomsedge was controlled by glyphosate applied in July at 2.0 lb ai/acre. Growth of plants in the conventional tilled plots were approximately two weeks ahead of the no-till plots. Weed competition in no-till plots was also higher.

TITLE: **HERBICIDES AND TIMING FOR CONTROL OF PERENNIAL WEEDS IN CRP FIELDS**

PROJ NO: 28C805T.4
START: 01 Jul 96 TERM: 31 DEC 97

INVESTIGATOR: Bloodworth, L.H.

OBJECTIVES: To develop chemical weed control recommendations for perennial weeds in CRP fields.

APPROACH: An experimental site with established perennial weeds has been selected to evaluate herbicides and date of application for weed control. Response of broomsedge and broadleaf weeds will be examined. Herbicides (common name and rate - lb ai/acre) include glyphosate (Roundup, 1, 2, or 3), atrazine (2.0) + paraquat (0.93), MSMA (3.0), imazapyr (Arsenal, 0.125) + imazethapyr (Pursuit, 0.125), and atrazine (1.0) + imazethatpyr (0.125). Application dates were 04 June, 01 July, or 15 August. Plots were rated for percent control of broomsedge and goldenrod two weeks after application and on 25 Sept.

PROGRESS: 9601 TO 9612
Glyphosate at all rates and dates provided excellent control of broomsedge on September 25. MSMA also provided excellent control of broomsedge for all dates. Goldenrod control was achieved by glyphosate applied on 4 June at all rates or at 3.0 lb ai/acre in July and by MSMA across all dates. The other treatments did not give satisfactory control of either weed.

PUBLICATIONS:
Bloodworth, H., and M. Lane. 1996. Herbicides and timing for control of perennial weeds in conservation reserve fields. Jamie L. Whitten PMC Technical Note Vol 12. No. 6. 4 p.

TITLE: **YIELD AND QUALITY OF UPLAND SWITCHGRASS**

PROJ NO: 28I100U
START: 01 JAN 95 TERM: 31 DEC 98

INVESTIGATOR: Douglas, J.L., Lane, D.M., Edwards, S.D.

OBJECTIVES: Compare dry matter yield and quality of four southern ecotypes of upland switchgrasses to 'Blackwell.'

APPROACH: Single, 20 ft rows of Mississippi collections (9062746, Grenada; 9062747 Calhoun; 9062759 Amite 1; 9062760 Amite 2 and Blackwell were established in replicated plots. Phosphorus and potassium were maintained at a medium level and 60 lb/acre of N were applied after each cutting. Yield was determined by harvesting 10 ft from the center of each

plot at the boot stage for the first cutting and regrowth was harvested when yield and quality appeared optimum. Quality estimates for crude protein (CP), acid detergent fiber (ADF) and estimated total digestible nutrients (TDN) were determined for each entry by cutting.

PROGRESS: 9601 TO 9612
Blackwell was the highest yielding entry (9779 lb/acre) but was not significantly different from the Grenada (9025 lb/acre) and Calhoun (8862 lb/acre) collections. These entries increased dry matter yield significantly more than both Amite accessions. Grenada, Amite 2, and Amite 1 collections had a significantly higher CP than Blackwell. Similar results were found for ADF. Estimated TDN ranged from a high of 56% for Grenada to a low of 52% for Blackwell.

TITLE: **UPLAND SWITCHGRASS INITIAL EVALUATION**

PROJ NO: 28I124G
START: 01 JAN 96 TERM: 12 DEC 98

INVESTIGATOR: Snider, J. A.

OBJECTIVE: To assemble, evaluate, select, and release an upland switchgrass for forage and grass hedges.

APPROACH: Ninety-four ecotypes were collected from native stands in Mississippi, Arkansas, and Alabama in 1994 and kept in pots during the initial year of collection. In 1995, plants were divided into single shoots and transplanted in a randomized complete block design with two replications in 1995.

PROGRESS: 9601 to 9612

1996 marked the first year for data collection. Six Mississippi collections were identified for vegetative hedges on the basis of plant height, basal circumference, stem density and stem diameter. These accessions were 9062836 (Madison County) 9062788 (Monroe County), 9062807 (Webster County), 9062821 (Kemper County), 9062780 (Pontotoc County) and 9062839 (Chickasaw County). Plans are to increase these accessions and collect seed for seed quality testing. Several accessions will be planted as a grass hedge to determine if soybean yield are effected by their low growing habit.

Several of the accessions possessed desirable forage characteristics such as fine stems, foliage abundance and prostrate growth. Evaluations will continue for a forage type.

PUBLICATIONS: Douglas, J.L., J. A. Snider and D. M. Lane. 1996. A comparison of switchgrass ecotypes for stiff grass hedges. Jamie L. Whitten PMC Technical Notes Vol. 12, No. 8, 4p.

TITLE: **GERMINATION RESPONSE OF SWITCHGRASS ECOTYPES TO STORAGE AND PRECHILL**

PROJ NO: 28I124G.1
START: 01 AUG 95 TERM: 31 DEC 97

INVESTIGATOR: Douglas, J. L.; Grabowski J. M.; Lang, D. J.

OBJECTIVES: Objective is to compare germination response of three switchgrass ecotypes as influenced by geographical location of seed production, storage environment, length of storage, and prechill.

APPROACH: Seed germination studies were conducted in a growth chamber following Association of Official Seed Analyst seed testing procedures. Switchgrass seeds were obtained from an upland type grown in Mississippi, and two lowland types, 'Alamo' grown in Mississippi and 'Kanlow' grown in Kansas. Seed were stored in a seed cooler (7 degree C, 55% RH), at room temperature, and in a warehouse without environmental control. Prechilling consisted of placing moistened seed in a cooler (7 degree C) for 14 days. Seed germination was tested every other month over a 12 month period. Two years of seed harvest (1995 and 1996) will be tested.

PROGRESS: 9508 to 9612
Testing of 1995 seed has been completed. Alamo had a significantly higher germination percentage than Kanlow and the upland type at 7 and 14 days. Germination percentages for Kanlow and the upland type were similar at 7 and 14 days. Prechill significantly increased 7 and 14 day germination of all switchgrasses. Seed stored at room temperature significantly increased germination percentage over the warehouse and cooler environment. There was a slight trend towards increased germination with length of storage.

CRITICAL AREA EROSION CONTROL

TITLE: **THE EFFECT OF SELECTED HERBICIDES ON THIRTEEN SPECIES OF NATIVE GRASSES AND FORBS**

PROJ NO: 28A013X.5
START: 01 JAN 96 TERM: 31 OCT 98

INVESTIGATOR: Billingsley Jr., B. B.; Grabowski, J. M.

OBJECTIVES: PROJ #28A013X.5. (1) To test the effect of preemergence herbicides on germination of certain native grasses and forbs, and; (2) To evaluate the injury caused by post-emergence applications of certain herbicides to some of these same species.

APPROACH: Preemergence herbicide tests will be conducted in a greenhouse in one gallon containers filled with sandy loam soil. Experimental design is a randomized complete block, using four herbicides plus controls. Plant species to be tested include four grasses and nine forbs. Seedling counts will be made two, three and seven weeks after planting and herbicide application to determine germination and survival. The effect of herbicides on each species will be determined by an ANOVA and mean separation. Post-emergence herbicide tests will be conducted using four herbicides and eleven plant species previously established in test plots. Not all herbicides will be tested on all species. Injury to target species and weeds, plus regeneration of target species, will be compared to non-sprayed control areas. Statistical analysis will be performed in the same manner as the preemergence test.

PROGRESS: 9601 to 9612
Pots used in the preemergence herbicide test were filled, seeded and sprayed on April 3 and 4, 1996. Herbicides tested were metribuzin (Sencor), metolachlor (Dual), and DCPA. Seedlings were counted on April 17 and 24 and May 22. Analysis of the data has not been completed. Herbicide effects varied by species. In general, DCPA was the least injurious to most species, but it did prevent germination of some species, especially of the small seeded grasses. Metribuzin did not prevent germination, but seedling mortality was evident by week 7. Metolachlor prevented germination of some species, growth abnormalities were noted, and some mortality was evident by week 7. Some seedling mortality was caused by the growing conditions of this test, as evidenced by losses in the control pots. This test will be continued in 1997, with some modifications of the potting-seeding procedures and the addition of atrazine as a test herbicide. Sethoxydim (Poast), sprayed September 19 caused no damage to forbs, and gave fair control of weedy grasses. Dicamba (Banvel), sprayed May 17 on grass species and August 15 on forb species, caused no injury to the grasses, killed most forbs tested, and only injured most broadleaf weeds. MSMA, sprayed July 3, caused moderate to severe burning of perennial grasses, killed most forb species as well as many annual weedy species. This test will be continued in 1997 with the addition of sulfometuron methyl applied in November to most test species. Data recorded will include numbers of plants surviving in both sprayed plots and controls.

TITLE: **SEEDING MIXTURES FOR CRITICAL AREA STABILIZATION**

PROJECT NO: 28A005X.1

START: 01 OCT 1995 TERM: 31 OCT 1999

INVESTIGATOR: Snider, J. A.

OBJECTIVES: The objective of this study is to evaluate the compatibility of selected grass and legume seeding mixtures and their suitability for critical area erosion control.

APPROACH: The first trial planting in November 1995 included ryegrass and bahiagrass plus combinations of wildbean and partridge pea along with mulch/no mulch treatments. The second test involved planting browntop millet and bahiagrass in combination with partridge pea and trailing wildbean and mulch/no mulch treatments. The third seeding mixture trial included annual ryegrass, fescue and a combination of trailing wildbean and partridge pea with mulch/no mulch treatments. Treatments were arranged in a randomized complete block design with three replications.

PROGRESS:
Results after one growing season are not conclusive. The annual grasses (ryegrass and browntop millet) rapidly provided a protective soil cover. Browntop millet stands however, were over-abundant and smothered most of the legume seedlings. Some late germinating wildbean and partridge pea plants eventually emerged from the residue after the millet died in late summer. Annual ryegrass stands in the spring were not as vigorous and allowed considerable numbers of partridge pea and wildbeans to germinate, grow, and produce a seed crop. Mulch appears to benefit establishment of most of the species in the seeding mixture. Bahiagrass has not established in any of the test plots. Poor germination or competition may contributed to this occurrence.

WATER QUALITY IMPROVEMENT

TITLE: **COLLECTION AND RELEASE OF SOURCE-IDENTIFIED WETLAND SPECIES**

PROJ NO: 28A001X.1
START: 01 JAN 95 TERM: 31 OCT 97

INVESTIGATOR: Billingsley Jr., B. B.; Grabowski, J. M.

OBJECTIVES: PROJ. #28A001X.1. To collect vegetative material from populations of wetland species in Mississippi, to increase populations of these ecotypes and release these plants for production by the nursery trade.

APPROACH: The aim was to collect plant materials that appear to be useful for water quality improvement and soil erosion control. Most material available in the nursery trade is from widely varying geographic locations. The local origin of these ecotypes should increase their suitability for use in this region of the country. The plants will be grown in wet cells at the Plant Materials Center and maintained free of contamination by other ecotypes of these species. Vegetative material will be dug and provided to commercial nurseries for production and sale to the public. Tests will be conducted in the greenhouse to determine seed propagation methods for these species. Treatments to be used are based on reference material when available. Seed storage conditions tested will be dry storage, moist storage, and for some species, storage in water. Seed treatments for dry stored seed will be cold stratification and, for some species, mechanical and/or acid scarification. When available, newly collected seed will be tested against seed that was collected and stored dry for several years. The two growing environments tested will be saturated soil conditions on a flood bench and moist soil conditions on a normal greenhouse bench.

PROGRESS: 9501 TO 9701
Plants collected and the Mississippi counties of collection were *Scirpus cyperinus (L.)* Kunth, Jones; *Scirpus tabernaemontani* K.C. Gmel., Jackson; *Thalia dealbata* Fraser ex Roscoe, Washington; *Echinodorus cordifolius (L.)* Griseb., Leflore; and *Sagittaria australis (J.G. Sm.)* Small, Lafayette. The growth rate and appearance of *Scirpus tabernaemontani* and *Sagittaria australis* were rated less than satisfactory, so these plants will not be released at the present time. Documentation to release the three remaining species was prepared in 1996 and plants will be made available to nurserymen in 1997. A seed germination study was on the five species was conducted from March to June, 1996. No seed treatments provided satisfactory germination of *Echinodorus cordifolius*. All other species, except *Thalia dealbata*, germinated best on the flood bench environment. All species showed improved germination rates following stratification. The germination of *Scirpus tabernaemontani* was improved by acid scarification prior to stratification. Seed that had been stored for several years did not show decreased germination compared to fresh seed. Testing will be continued in 1997. Treatments to be used may be modified based on the results of the 1996 test.

TITLE: **EFFECTS OF POULTRY LITTER APPLICATION IN THE SHILOH CREEK WATERSHED, WAYNE COUNTY, MISSISSIPPI.**

PROJECT NO: 28C125O
START: 01 JAN 95 TERM: 31 DEC 97

INVESTIGATOR: Edwards, S.D.

OBJECTIVES: To monitor local poultry waste management practices in a field condition and assess their impact on soil and water quality before, during, and after poultry litter application.

APPROACH: ISCO Model 1680 water samplers were installed on a local producer's farm that had not received prior poultry litter application. Soil is sampled before and after litter application in 25, ten by ten foot plots. Water samples are taken from two sites in the concentrated flow during each rainfall event that results in surface runoff. Water samples are monitored for nitrate/nitrite nitrogen and ortho-phosphate.

PROGRESS: 9601 TO 9612
There was a total of 24 rainfall events that caused surface runoff from the field of observation. To determine the total concentration of nutrients that are leaving the field it was necessary to install a device that would measure volume of water. An RK^2 Flow Meter was installed in March of 1996 with two flumes to concentrate the flow across a know surface area.

The vegetative debris basin that was planted with *Arundo donax* (giant reed) was not an effective practice in this concentrated flow area. The water level measuring devices that were installed caused the water to concentrate more than in a normal pasture situation. Because of this and damage resulting from cattle grazing, the *Arundo donax* was removed for the final year of the study.

Concentrations of nitrate/nitrite nitrogen remained constant with very little increase from the baseline recorded in 1995. The ortho-phosphate had a slight increase immediately following litter application but returned to baseline levels in the fall of the year. However, soil test phosphorus has increased 53% from March of 1995.

PLANT AND WATER ANALYSIS LABORATORY

Mission:

The purpose of the Plant and Water Analysis Laboratory is to provide quality plant and water testing services for the network of USDA/NRCS Plant Materials Centers across the nation.

Testing Services:

The following is a list of plant and water testing services the laboratory provides:

Water Samples	Plant Samples
nitrate/nitrite nitrogen	percent nitrogen (crude protein)
ortho-phosphorus	acid detergent fiber
total nitrogen	neutral detergent fiber
total phosphorus	percent phosphorus
alkalinity	ash content
total solids	estimated % TDN, RFV, etc.
total suspended solids	
pH	

Customer Base:

Plant samples were received from:

Big Flats PMC, New York
Booneville PMC, Arkansas
East Texas PMC, Texas
Elsberry PMC, Missouri
Jamie L. Whitten PMC, Mississippi
Jimmy Carter PMC, Georgia
Knox City PMC, Texas
Pullman PMC, Washington

Water samples were received from:

Booneville PMC, Arkansas.
NRCS, Stoneville, Mississippi
NRCS FO Waynesboro, Mississippi

PLANT MATERIALS INCREASE FOR 1996

The plant materials process requires populations to be increased during one or more stages. Often, only a small number of seed or plants of the originally collected material is available, and several years of propagation may be required to produce sufficient materials for testing, release, and eventual use. Materials in increase are considered to be in either an initial, special project, or field production increase. Other materials increased during 1996 include:

Initial Increase:

Genus/species	Common Name	Accession
Arundinaria gigantea	Dwarf switchcane	9035218
" "	" "	9035247
Arundo donax	Giant reed	9035156
Chamaecrista fasciculata (Cassia)	Partridge pea	9028375
Echinodorus cordifolius	Creeping burhead	9062853
Medicago arabica	Spotted bur clover	9059035
" "	" "	9077061
Medicago sp.	Bur clover	9062793
Miscanthus sinensis	Chinese silvergrass	434142
Phragmites australis	Common reed	434213
S. humilis	Prairie willow	9004886
S. eriocephala (rigida)	Erect willow	9004885
Scirpus cyperinus	Woolgrass	9062741
S. tabernaemontani (validus)	Soft stem bulrush	9062740
Strophostyles helvula (helvola)	Trailing wildbean	9062718
" "	" "	9021719
Thalia dealbata	Powdery thalia	9059002

Field increase:

Genus/species	Common Name	Cultivar
Glycine soja	Reseeding soybean	'Quail Haven'
Trifolium vesiculosum	Arrowleaf clover	'Meechee'
Panicum hemitomon	Maidencane	'Halifax'
Echinochloa frumentacea	Japanese millet	'Chiwapa'

PLANT MATERIALS SHIPPED IN 1996

During 1996, 60,770 rhizomes and 1,615 pounds of seed were shipped from the PMC to field locations for conservation trials and field plantings.

The following species were shipped:

Halifax maidencane	59,650 rhizomes
Gilg willow	520 cuttings
Erect willow	520 cuttings
Prairie willow	20 cuttings
Vetiver grass	60 plants
Quail Haven reseeding soybean	25 lb. seed
Teosinte mixed with Quail Haven	50 lb. seed
Eastern gamagrass	50 lb. seed
Winter ticklegrass	300 lb. seed
Heartleaf aster	18.50 lb. seed
Bur marigold	79 lb. seed
Partridge pea	34.5 lb. seed
Calliopsis	88 lb. seed
Clasping coneflower	324 lb. seed
Virginia wildrye	41 lb. seed
Wild ageratum	37 lb. seed
Swamp sunflower	14 lb. seed
Little barley	123.5 lb. seed
Gayfeather	2.5 lb. seed
Black-eyed Susan	182 lb. seed
Lyre-leaf sage	142 lb. seed
Little bluestem	3.5 lb. seed
Rosin weed	4 lb. seed
Blue-eyed grass	0.40 lb. seed
Purpletop	96 lb. seed

PLANT MATERIALS CENTER RELEASES (1965-1986)

'Quail Haven' reseeding soybean (*Glycine soja* Siebold and Zucc.)

'Quail Haven' was released in 1986 as a plant for wildlife food and cover. It also can be used for hay and as a green manure crop. It is an annual, vining, hard-seeded legume which reseeds readily. Some soil disturbance in early spring is beneficial for successful establishment.

'Meechee' arrowleaf clover (*Trifolium vesiculosum* Savi.)

'Meechee' clover was released in 1966. It can be used as a forage crop and as a cool season cover crop, although peak growth does not occur until April or May. A recommended practice is to interseed 'Meechee' with ryegrass to extend spring grazing. It is a hard-seeded, annual legume, and seed can remain viable in the soil for several years. Disking or tilling in early fall encourages germination and establishment.

'Chiwapa' Japanese millet (*Echinochloa frumentacea* Link)

'Chiwapa' was released in 1965. It is a tall, robust, annual, warm season grass which, when planted on mud flats in the summer and flooded after maturity, provides food for waterfowl. Seed resists deterioration when submerged. Chiwapa can also be used as an annual forage crop for livestock, but may be subject to lodging.

'Wilmington' bahiagrass (*Paspalum notatum* Fluegge)

'Wilmington' was released in 1971. It is a warm season, perennial grass used for pasture and hay production. It is more cold tolerant in North Mississippi than 'Pensacola' bahiagrass, but low seed production limits its availability. Wilmington is readily identified by its dark green foliage.

'Halifax' maidencane (*Panicum hemitomon* J. A. Schultes).

'Halifax' was released in 1974 for stabilization of stream channels and shorelines. It is a warm season, perennial grass adapted to wet areas. It does not produce viable seed. Propagation is by vegetative means using rhizomes.

TECHNICAL REPORTS

Technology transfer is a major priority at the Jamie L. Whitten PMC. Since 1985, numerous reports have been prepared on plant materials studies conducted by the PMC. Technical reports available for distribution are listed below.

1996 Reports

Establishment of Native Plants on Disturbed Sites - - Joseph Snider
Bio-technical Erosion Control - - Joseph Snider
How to Grow No-till Cotton - - Herby Bloodworth
Growing Butterfly Milkweed - - Janet Grabowski
Evaluation of Establishment Methods for Certain Herbaceous Native Plant Species B.B. Billingsley and Janet Grabowski
Herbicides and Timing for Control of Perennial Weeds in Conservation Reserve Fields. Herby Bloodworth and Mike Lane
An Alternative Erosion Control Practice for Cropland - - Joel L. Douglas and Carl E. Mason
A Comparison of Switchgrass Ecotypes for Stiff Grass Hedges - - Joel L. Douglas, Joe Snider and Mike Lane
Reseeding Arrowleaf Clover as a Nitrogen Source for No-till Cotton - - Herby Bloodworth
No-till Grain Sorghum Response to Arrowleaf Clover and Nitrogen - - Herby Bloodworth
Cover Crops and C-factors for Conservation Tilled Sweetpotato - - Herby Bloodworth, Larry Golden, and Ken Ainsworth.
Cover Crop C-values for No-till Peanut - - Herby Bloodworth, Larry Golden, and Ken Ainsworth.
Cover Crop C-factors for Cotton Tillage Systems - - Herby Bloodworth
Evaluation of Plant Species for Vegetative Hedges - - Mike Lane and Joel Douglas

1995 Reports

Black-eyed Susan - A Useful Wildflower--B. B. Billingsley
Comparison of Americus and Commercial Source of Hairy Vetch as a Cover Crop--Joel L. Douglas
Planting and Maintenance of Wildflowers and Native Grasses in the Midsouth--Janet M. Grabowski
Seed Germination of Alamo Switchgrass as Influenced by Age of Seed and Prechill--Joel L. Douglas and Janet Grabowski
Yield and Quality of Upland Switchgrass--Joel L. Douglas, Mike Lane, and Scott Edwards
Initial Evaluation of Eastern Gamagrass Ecotypes for the Mid-South--Joe Snider
Using Hairy Vetch as a Nitrogen Source for Cotton--Herby Bloodworth

1995 Reports continued

Reduced Cover Crop Seeding Rates for No-till Cotton--Herby Bloodworth
Renovation of Conservation Reserve Program Fields--Herby Bloodworth and Mike Lane
Establishment Methods of Sweetpotato in a Conservation Tillage System--Herby Bloodworth and Mike Lane
Sweetpotato and Peanut Response to Cover Crops and Conservation Tillage--Herby Bloodworth, Mike Lane, and Joe Johnson

1994 Reports

Low maintenance trials of cool-season species on surface mines--Joel L. Douglas and James A. Wolfe
Recommended plant sample preparation for PMC's--Scott D. Edwards
Shoreline erosion control with maidencane--Joel L. Douglas
Vegetative barriers for the Midsouth--Mike Lane
Vetiver grass variety trials, 1989-1990--Joe Snider
Peanut response to cover crops and tillage--Herby Bloodworth and Mike Lane
Vegetative barriers for Mississippi's cropland--Joel L. Douglas
Field plantings of marshhay cordgrass in the Delta states--Joel L. Douglas and James A. Wolfe
Sweetpotato response to cover crops and conservation tillage--Herby Bloodworth and Mike Lane
Field plantings of switchgrass cultivars in the Delta states--Joel L. Douglas and James A. Wolfe
Cover crop potential of white clover: Morphological characteristics and persistence of thirty-six varieties--Joe Snider, Herby Bloodworth, and Vance Watson
Establishment methods of cover crops in no-till cotton--Herby Bloodworth, James A. Wolfe, and Joe Johnson

1993 Reports

Peanut Response to Cover Crops and Tillage--Herby Bloodworth
Sweetpotato Response to Tillage and Cover Crop--Herby Bloodworth
Evaluation of White Clover Varieties for Use in No-Tillage Systems and the Conservation Reserve Program--Joe Snider and Herby Bloodworth
Vegetative Barriers for the Mid-South--Mike Lane
Response of Tall Fescue and Bermudagrass to Fly Ash Treated Soil--Joe Snider
Cover Crop Response to Soil Applied Herbicides Used in Cotton--Herby Bloodworth and Joseph R. Johnson

1992 Reports

Selection of a Cold Hardy Bahiagrass Cultivar--L.H. Bloodworth, J.A. Wolfe, and J.A. Snider
Low Maintenance Trials of Warm-Season Species on Surface Mines--J.A. Wolfe
Seed Production and Variation Among Selected Trailing Wildbean Accessions--J.A. Wolfe
Field Plantings of Afghan Reedgrass--J.A. Wolfe
Field Plantings of Four Willow Selections--J.A. Wolfe
Bluegrass Variety Trials--J.A. Snider and J.A. Wolfe

1991 Reports

Response of Selected Accessions to Common Herbicides--L.H. Bloodworth
Seed Production and Variation Among Selected Partridgepea Accessions--J.A. Wolfe

1990 Reports

Initial Evaluation of Beaked Panicum--J.A. Wolfe and J.A. Snider
Initial Evaluation of Purpletop--J.A. Wolfe and J.A. Snider
No-Till Cotton Trails: I. Establishment Methods of Cover Crops in No-Till Cotton--L.H. Bloodworth
No-Till Cotton Trials: II. Effects of Cotton Herbicides on Cover Crops--L.H. Bloodworth
No-Till Cotton Trials: III. Effects of Cover Crops on Tillage and Cotton--L.H. Bloodworth
Advanced Evaluation of Giant Reed: Comparison of a Coffeeville PMC Selection with Five Accessions from Brooksville--J.A. Wolfe and B.B. Billingsley
Initial Evaluation of Rescuegrass for Winter Cover--J.A. Wolfe and J.A. Snider

1989 Reports

Initial Evaluation of Trailing Wildbean--J.A. Wolfe, J.A. Snider, and B.B. Billingsley

1988 Reports

Arkansas Blackland Prairie Field Evaluation Planting IX: Plant Performance in Adaptation Studies--J.A. Wolfe
Investigations into the Establishment of Vegetative Flumes at the Coffeeville PMC--B.B. Billingsley, J.A. Snider, and J.A. Wolfe
Evaluation of Potential Cover Crop Species for use in Chemically Treated Cotton Fields--J.A. Snider, J.A. Wolfe, and B.B. Billingsley
No-Till Trials for Common Row Crops I. Milo Production Following Six Cover Crop Treatments--J.A. Wolfe, J.A. Snider, and B.B. Billingsley
No-Till Trials for Common Row Crops II. Establishment of Cotton and Soybean into Winter Cover Without Plowing--B.B. Billingsley, J.A. Snider, J.A. Wolfe

1987 Reports

Initial Evaluation of Partridgepeas--J.A. Wolfe and J.A. Snider
Initial Evaluation of Illinois Bundleflower--J.A. Wolfe and J.A. Snider
Advanced Evaluations of Giant Reed: I. Results of Monthly Planting Study--J.A. Wolfe, J.A. Snider, and B.B. Billingsley.
Advanced Evaluation of Giant Reed: II. Planting Position Study--J.A. Wolfe, J.A. Snider, and B.B. Billingsley
Advanced Evaluation of Giant Reed: III. Survival and Spread Study--J.A. Snider and J.A. Wolfe
Arkansas Blackland Prairie Field Evaluation Planting III: Performance of Introduced Bluestems--J.A. Wolfe
Arkansas Blackland Prairie Field Evaluation Planting IV: Performance of native Bluestems--J.A. Wolfe
Arkansas Blackland Prairie Field Evaluation Planting V: Performance of Switchgrasses--J.A. Wolfe
Arkansas Blackland Prairie Field Evaluation Planting VI: Performance of Indiangrasses--J.A. Wolfe
Arkansas Blackland Prairie Field Evaluation Planting VII: Performance of Shortgrasses--J.A. Wolfe
Arkansas Blackland Prairie Field Evaluation Planting VIII: Performance of Five Lespedeza Varieties--J.A. Wolfe

1986 Reports

Arkansas Blackland Prairie Field Evaluation Planting I: Plant Performance in Management Trials--J.A. Wolfe
Arkansas Blackland Prairie Field Evaluation Planting II: Changes in Plant Performance over Three Years--J.A. Wolfe
Rooting Trials for Promising Willows--J.A. Wolfe, J.A. Snider, and B.B. Billingsley
Advanced Evaluation of Afghan Reedgrass: I. Results of Planting Trials--J.A. Wolfe and J.A. Snider
Advanced Evaluation of Afghan Reedgrass: II. Effects of Clipping on Production--J.A. Wolfe, B.B. Billingsley, and J.A. Snider

1985 Reports

Initial Evaluation of Yellow Bluestem--J.A. Wolfe, B.B. Billingsley, and J.A. Snider
Initial Evaluation of Limpograss--J.A. Wolfe, B.B. Billingsley, and J.A. Snider
Initial Evaluation of Brunswickgrass--J.A. Wolfe, B.B. Billingsley, and J.A. Snider
Initial Evaluation of Indiangrass--J.A. Wolfe, B.B. Billingsley, and J.A. Snider

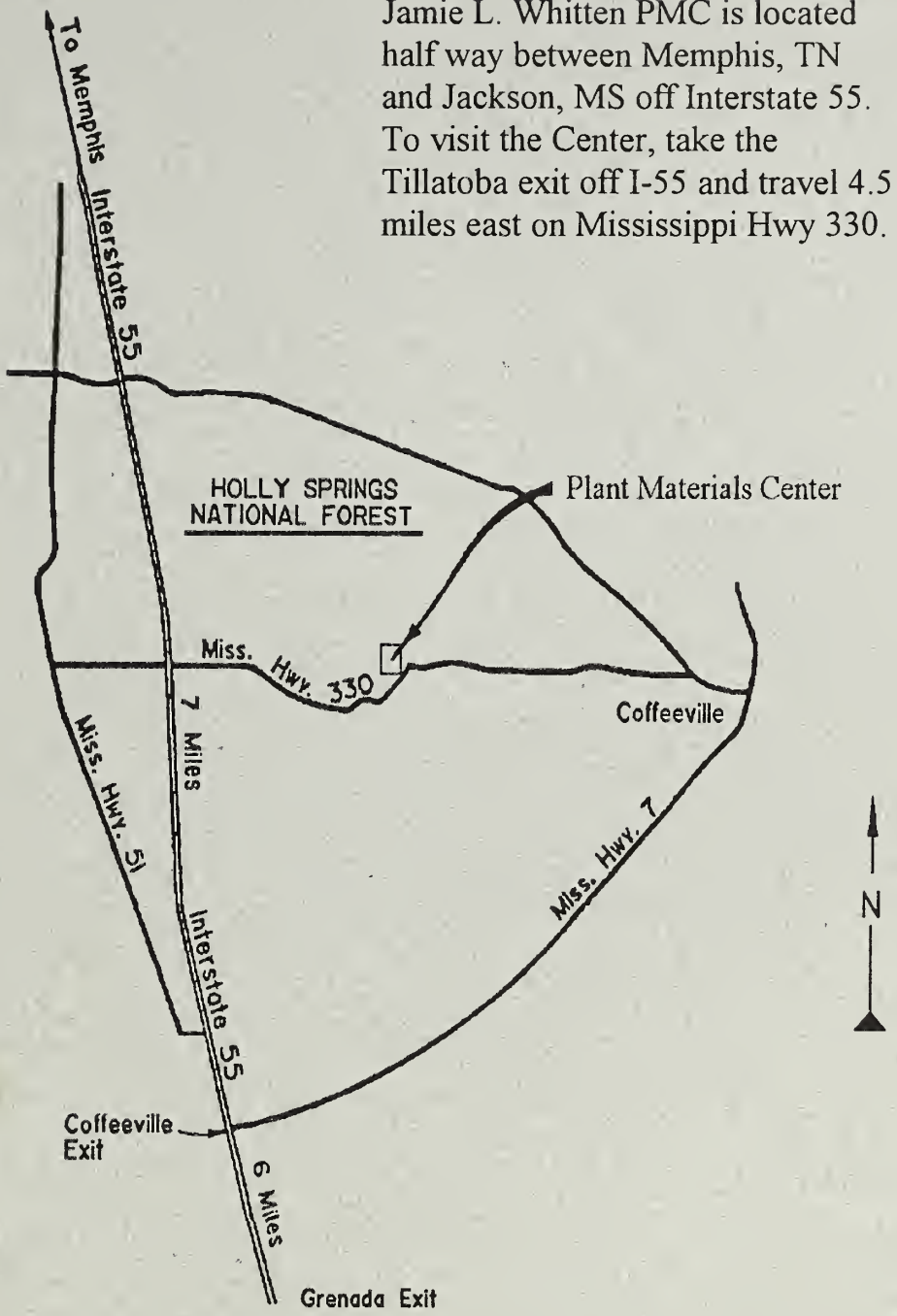
Copies of these reports may be requested from:

Jamie L Whitten PMC
Route 3 Box 215A
Coffeeville, MS 38922
601-675-2588

Mention of a trademark or proprietary product does not constitute a guarantee or warranty of the product by USDA-NRCS and does not imply its approval to the exclusion of other products that also may be suitable.

LOCATION OF PLANT MATERIALS CENTERS

Jamie L. Whitten PMC is located half way between Memphis, TN and Jackson, MS off Interstate 55. To visit the Center, take the Tillatoba exit off I-55 and travel 4.5 miles east on Mississippi Hwy 330.



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